

Appl. No. 10/069,409
Response dated April 29, 2005
Reply to Non-Final Office Action of February 15, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-11. (canceled)

12. (currently amended) A process for bonding substrates with hotmelt adhesive comprising:

- (a) providing at least two substrates for bonding together;
- (b) optionally, applying at least one microwave-activatable primer to at least one of the substrates;
- (c) applying spraying at least one hotmelt adhesive ~~to~~ in liquid form containing nanoscale particles having ferromagnetic, ferromagnetic, superparamagnetic or piezoelectric properties onto at least one of the substrates;
- (d) pressing the at least two substrates together so that the optional primer and the hotmelt adhesive are between the substrates and exposing at least the ~~microwave-activatable primer~~ hotmelt adhesive to microwaves at least one alternating field selected from the group consisting of electrical, magnetic and electromagnetic alternating fields to heat the hotmelt adhesive; and
- (e) cooling the hotmelt adhesive.

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13. (previously presented) The process of claim 12 wherein one of the substrates is porous and the other substrate is porous or nonporous.

14. (previously presented) The process of claim 13 wherein at least one of the substrates is a porous woven or nonwoven fibrous substrate selected from leather or a textile.

15. (canceled)

16. (canceled)

17. (currently amended) The process of claim 12, wherein the hotmelt adhesive is thermoplastic or reactive and contains no microwave-activatable additives.

18.-22. (canceled)

23. (currently amended) The process of claim 12 wherein the substrates having the liquid hotmelt adhesive and the microwave-activatable primer in between are pressed together under a pressure ranging from 0.5 bar to 6 bar for a time period ranging from 5 seconds to 20 minutes.

24. (previously presented) The process of claim 23 wherein the substrates are pressed together under a pressure ranging from 2 bar to 5 bar for a time period ranging from 10 seconds to 30 seconds.

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25. (canceled)

26. (currently amended) The process of claim 12 wherein after exposing the ~~microwave~~ ~~activatable primer~~ ~~hotmelt adhesive~~ to the ~~microwaves~~ alternating field, the substrates remain pressed together at least until after the hotmelt adhesive begins to solidify.

27. (previously presented) The process of claim 26 wherein the substrates remain pressed together at least until the hotmelt adhesive has cooled to a temperature of about 30°C.

28. (previously presented) The process of claim 12 wherein the substrates are components of a shoe and the process is part of an in-line process for making shoes.

29. (canceled)

30. (canceled)

31. (new) The process of claim 12 wherein the nanoscale particles have a particle size of not more than 500 nm.

32. (new) The process of claim 12 wherein the hotmelt adhesive contains from 1 to 30 weight percent of the nanoscale particles.

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33. (new) The process of claim 12 wherein the hotmelt adhesive is reactive.

34. (new) The process of claim 12 wherein the hotmelt adhesive contains less than 1% by weight of organic materials boiling at temperatures below 200° C.

35. (new) The process of claim 12 wherein the nanoscale particles have a particle size of not more than 300 nm.

36. (new) The process of claim 12 wherein the nanoscale particles have a mean particle size of from 1 to 40 nm.

37. (new) The process of claim 12 wherein the nanoscale particles have a mean particle size of from 3 to 30 nm.

38. (new) The process of claim 12 wherein the hotmelt adhesive contains from 3 to 10 weight percent of the nanoscale particles.

39. (new) The process of claim 12 wherein the alternating field is an electrical alternating field and said nanoscale particles comprise one or more materials selected from the group consisting of quartz, tourmaline, barium titanate, lithium sulfate, potassium (sodium) tartrate, ethylenediamine tartrate, ferroelectric materials of perovskite structure, and lead zirconium titanate.

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40. (new) The process of claim 12 wherein the alternating field is a magnetic alternating field and said nanoscale particles comprise one or more materials selected from the group consisting of aluminum metal, cobalt metal, iron metal, nickel metal, aluminum alloys, cobalt alloys, iron alloys, nickel alloys, metal oxides of the n-maghemite type, metal oxides of the n-magnetite type, and ferrites of general formula $MeFe_2O_4$, wherein Me is a divalent metal selected from the group consisting of copper, zinc, cobalt, nickel, magnesium, calcium and cadmium.

41. (new) The process of claim 12 wherein the alternating field is a magnetic alternating field and said nanoscale particles are nanoscale superparamagnetic particles.